

far-infrared (250–500 μm), mid-infrared (18 μm), near-infrared (2–4 μm), and optical (i-band) source catalog. We are going to present morphologies and physical properties of 850 μm selected submillimeter galaxies with the help of ancillary multi-wavelength datasets over the NEP area.

[포 GC-08] Weak Lensing Mass Map Reconstruction of Merging Clusters with Convolutional Neural Network

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We introduce a novel method for reconstructing the projected dark matter mass maps of merging galaxy clusters by applying the convolutional neural network (CNN) to their weak lensing maps. We generate synthesized grayscale images from given weak lensing maps that preserve their averaged galaxy ellipticity. We then apply them to multi-layered CNN with architectures of alternating convolution and trans-convolution filters to predict the mass maps. We train our architecture with 1,000 Subaru/Suprime-Cam mock weak lensing maps, and our method have better mass map prediction than the Kaiser-Squires method with the following three aspects: (1) better pixel-to-pixel correlation, (2) more accurate finding of density peak position, and (3) free from mass-sheet degeneracy. We also apply our method to the HST weak lensing map of the El Gordo cluster and compare our result to the previous studies.

[포 GC-09] Narrow-band Ca Photometry for Dwarf Spheroidal Galaxies: Recent Results and Future Work

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This poster introduces the ongoing "Narrow-band Ca Photometry for Dwarf Spheroidal Galaxies" project and presents the latest results. The project aims to explain the formation and evolution of dwarf spheroidal galaxies by examining the structural properties of stellar populations as a function of metallicity. To overcome the lack of stars with known spectroscopic metallicities for dwarf spheroidal galaxies, we apply the hk index as a photometric metallicity indicator to three galaxies—Draco,

Sextans, and Canes Venatici I. For all three galaxies, we found that metal-poor and metal-rich groups of red-giant-branch stars have distinct spatial distributions, in which metal-rich stars are centrally concentrated while metal-poor stars are relatively dispersed. In Sextans, we found an off-centered peak of metal-poor stars which is presumed to be a disrupting star cluster in this galaxy. We will discuss the implications of our results for the dwarf galaxy formation and possible directions on future work of this project.

[포 GC-10] Chemical properties of star-forming galaxies in Virgo-related large-scale filamentary structures.

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The filament is an interesting structure in the Universe because clusters form at the nodes of filaments and grow through the continuous accretion of individual galaxies and groups from the surrounding filaments. We study the chemical properties of star-forming (SF) galaxies in the five large-scale filamentary structures (Leo II A, Leo II B, Leo Minor, Canes Venatici, and Virgo III) related with the Virgo cluster, with the spectroscopic data taken with the SDSS DR12, and compare them with those of the Virgo cluster and field galaxies. In mass-metallicity relation, most of the SF galaxies in Virgo-related filaments (except Virgo III filament) show lower metallicity on average than the Virgo cluster SF galaxies, but similar to field counterparts. These chemically less evolved feature of SF galaxies in the filaments and field are more pronounced for lower mass galaxies. This is probably because low mass galaxies have low potential wells and are therefore likely to be sensitive to cluster environmental effects. Interestingly, we find that the metallicity enhancement of SF galaxies in the Virgo III filament. In chemical and morphological perspectives, SF galaxies in the Virgo III thought to be transitional objects possibly transformed from SF late-type galaxies and are on the way to red early-type galaxies in the filament environment. This is the first discovery of systematic 'chemical pre-processing' signature for filament galaxies in Local Universe before they fall into the cluster.

[포 GC-11] Gas dynamics and star formation in dwarf galaxies: the case of DDO 210

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